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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,028	11/18/2003	Bo Li	H9930-0305	7345

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EXAMINER

JOHNSON, CONNIE P

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/717,028	<b>Applicant(s)</b> LI ET AL.	
	<b>Examiner</b> Connie P. Johnson	<b>Art Unit</b> 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-43,45,47,49,51,53 and 55-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-43,45,47,49,51,53 and 55-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Claims 1, 3-43, 45, 47, 49, 51, 53, 55-58 are pending.
2. Claims 2, 44, 46, 48, 50, 52 and 54 are cancelled per Applicant's request.
3. Claims 1, 14, 16-18, 26-29, 31-32, 34, 37, 41, 43, 45, 47, 49, 51 and 55 are amended.
4. Claims 57 and 58 are new claims.
5. The 112, 2<sup>nd</sup> paragraph rejection for claims 2, 44, 46 and 48 is withdrawn.
6. The Double-Patent rejection over Kennedy, U.S. Patent No. 7,012,125 B2 is withdrawn.
7. The 103(a) rejection over Kennedy is withdrawn.

### *Double Patenting*

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1, 3-22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 41-43, 45, 47, 49, 51, 53, 55-58 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7, 9-20 and 22-29 of

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Kennedy et al., U.S. Patent No. 6956097 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the application and the patent contain an absorbing compound, an inorganic compound and a material modification agent.

10. Claims 1, 3-22, 24, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 41-43, 45, 47, 49, 51, 53, 55-58 are rejected under 35 U.S.C. 102(e) as being anticipated by Kennedy et al., U.S. Patent No. 6,956,097 B2.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Kennedy teaches an anti-reflective coating composition comprising a siloxane polymer and an organic absorbing compound (col. 2, line 62 and col. 3, line 3). The composition also comprises organic dyes that absorb in the range of 375nm to 260nm with a 10nm wide width range. The chromophores of the organic dyes comprise 1 to three benzene rings that may or may not be fused (col. 3, lines 28-37). The reactive groups attached to the chromophores in the organic dyes are hydroxyl, amine, carboxylic acid and substituted silyl groups (col. 3, lines 37-42). The organic absorbing compounds include 9-anthracene carboxylic acid, 9-anthracene methanol, alizarin, quinizarin and primuline (col. 3, lines 45-55). A method of forming an absorbing material includes forming a mixture comprising tetrabutylammonium chloride as the

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phase transfer catalyst (col. 8, line 3). The tetrabutylammonium chloride as a phase transfer catalyst meets the limitations of an adhesion promoter according to applicant's specification (see specification, page 21). The composition also comprises silane reactants including phenyltriethoxysilane (col. 6, line 59). The composition may also comprise silanes with terminating monomer units, such as tetraethoxysilane (col. 6, line 55). The tetraethoxysilane also meets the limitations of a capping agent. In example 1, Kennedy also teaches the method of forming an absorbing spin-on-glass composition with 9-anthracene carboxy-methyl triethoxysilane, nitric acid and water combined, followed by adding butanol, propanol, acetone, ethanol, water and FC-430. The resulting solution was baked to form a coating material. The composition may also comprise high boiling solvents, such as ethyl lactate and propylene glycol propyl ether to decrease the probability of forming bubble film defects (col. 7, lines 29-33).

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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12. Claims 1, 7, 11, 12, 13, 16, 17, 18, 19, 20, 21, 26, 29, 30, 31, 32, 33, 41 and 42 are rejected under 35 U.S.C. 102(e) as being unpatentable by Ravichandran et al., U.S. Patent No. 6,677,392 B2.

Ravichandran et al. teaches an absorbing composition consisting of an inorganic compound, an absorbing compound and a material modification agent (Column 9, lines 50-59 and column 10, lines 55-67). The viscosity improvers, light stabilizers, biocides and antistatic agents meet the limitations of material modifiers (col. 10, lines 56-60). The absorbing compounds include an epoxy carboxy resin and a silane modified acrylic melamine (column 10, line 9) as claimed in instant claim 7. In addition, when water-soluble, water miscible or water dispersible coatings are preferred, ammonium salts of acid groups present in the resin are formed. For example, a powder coating composition can be prepared by reacting glycidyl methacrylate with selected alcohol components (column 23, lines 49-53). The adhesion promoter may comprise an amine base (column 19, lines 43-49), ammonium and an amine salt as in instant claims 19, 20 and 21 (column 23, lines 49-62). Ravichandran et al. also teaches silicon oxide as an inorganic compound used in combination with polysiloxanes and other activators and ligands as a stabilizer in the polymer composition (column 12, lines 20-41). Ravichandran et al. also teaches amines (column 19, no.9), nitrones (column 19, no. 7) and phosphites (column 19, no. 4) as stabilizers used in the composition as in instant claims 16, 17, 18 and 19. In reference to claims 29 and 30, crosslinked polymers such as phenol/formaldehyde resins and epoxy acrylates are also used as stabilizers in the composition (column 14, no. 21 and 24). Ravichandran et al. teaches adhesion promoters used in polymerization

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includes dialkoxysilanes, trialkoxysilanes and other similar silane intermediates (column 27, lines 56-61) as in instant claims 31, 32 and 33.

13. Claims 1, 34, 35 and 36 are rejected under 35 U.S.C. 102(a) as being unpatentable by WO 03/088344 A1.

Leung et al. teaches all of the limitations of instant claim 1, including an inorganic based component at least one absorbing compound, one material modifier and a porogen, which is selected from a group including polyalkylene oxides (page 15, lines 25-29). In reference to claim 36, a polyethylene oxide is one porogen contained in the group of polyalkylene oxides. The polyethylene oxide is disclosed at page 15, line 27 of the reference.

### ***Response to Arguments***

14. Applicant's arguments filed September 5, 2006 have been fully considered but they are not persuasive.

15. In reference to the 102(e) rejection over Kennedy, Applicant argues that Kennedy (6,956,097) does not teach a material modification agent. Examiner disagrees. In col. 8, line 3, Kennedy teaches tetrabutylammonium chloride in the absorbing composition. The tetrabutylammonium chloride is an ammonium salt as referenced in applicant's specification (see p. 21). The limitation of the material modification agent being added to the composition once formed, is not a limitation in the claims.

Applicant also argues that Kennedy does not teach a material modification agent wherein the agent is conventionally considered a poisoning agent. Again, Applicant is arguing a limitation not set forth in the claims. Whether or not the material

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modification agent functions as a poisoning agent is not claimed. Further, the arrangement of the elements in the Kennedy reference is not relevant because the claims do not specify the elements in any particular order.

16. In reference to the 102(e) rejection over Ravichandran et al., Applicant argues that Ravichandran et al. (6,677,392) does not teach a material modification agent. Examiner disagrees. Ravichandran et al. teaches a coating composition comprising amine salts in column 23. Applicant discloses that the material modification agent may be any amine salt (see page 21 of Applicant's specification). Further, Applicant argues that the Ravichandran reference does not teach the elements of the application as arranged in the claims. The arrangement of the elements in the prior art is not relevant since applicant does not claim the elements in any particular order in the instant application.

Applicant argues that Ravichandran does not teach the material modification agent as a poisoning agent in lithography. Referencing the material modification agent as a poisoning agent is not required in the instant claims, nor does it change how the material modification agent functions in the composition. Claim 1 is not drawn to a method. Even if the material modification agent in Ravichandran is a poisoning agent, it does not teach away from the present invention.

17. In reference to the 103(a) rejection over Kennedy, Applicant argues that the presence of the high boiling point solvents in minimizing bubble film defects is not fully understood. The fact that the solvents may function to minimize the formation of bubble



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defects does not change the characteristic of having a high boiling point. Kennedy specifically teaches the solvents as high boiling point solvents as applicant claims (see Kennedy, col. 7, lines 29-33).

Applicant argues that Kennedy does not teach the function of the surfactant in the absorbing composition. Since the absorbing composition of Kennedy comprises a surfactant, in addition to the other components claimed, it would have been obvious that the surfactant would function the same as the surfactant in the instant invention.

Applicant further argues that Kennedy does not teach the addition of a material modification agent that is viewed as a poisoning agent in lithography. Kennedy teaches the same material modification agent as disclosed in applicants' specification (see applicants' specification, page 21). The fact that Kennedy does not teach the material modification agent as a poisoning agent does not change its chemical composition. Kennedy does not teach away from the instant claims. The material modification agent of Kennedy is expected to function the same as in applicants' instant invention. Applicant is invited to show where in the specification this feature is discussed. Further, applicant is invited to present a showing that the addition of high boiling solvents can improve photolithography or compatability of the resulting film.

### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*Connie P. Johnson 10/25/06*

Connie P. Johnson  
Examiner  
Art Unit 1752

CYNTHIA H. KELLY  
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*Cynthia H. Kelly*